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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,436	11/29/2001	John Richard Shutt	2001B110	3430

23455 7590 12/23/2003

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EXAMINER

HOPKINS, ROBERT A

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,436

Applicant(s)

SHUTT ET AL.

Examiner

Robert A Hopkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1-28, 4-15 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al(6403854) taken together with Chase et al(4218569).

Miller et al discloses a method of removing oxygenated hydrocarbons from an olefin stream comprising a step of contacting an oxygenate with an olefin forming catalyst to form an olefin stream, wherein the olefin stream comprises olefin and oxygenated hydrocarbon, and contacting the olefin stream with an absorbent in an absorption system to absorb the oxygenated hydrocarbon from the olefin stream(column 14 lines 16-19). Miller et al is silent as to wherein the absorbent is selected from the group consisting of a polyol, amine, amide, nitrile, heterocyclic nitrogen containing compound, and mixtures thereof. Chase et al discloses etherifying an olefin by reacting an olefin with methanol and a catalyst, and using a polyol as an absorbent to remove the methanol. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of contacting the olefin

stream of Miller et al with a polyol absorbent because the polyol absorbent is an efficient absorber of the oxygenated hydrocarbon(methanol) while it minimizes absorption of hydrocarbons(column 3 lines 49-52 of Chase et al). Miller et al further teaches removing an olefin stream from the absorption system. Miller et al further teaches wherein the olefin stream removed from the absorption system contains at least 50 wt% less oxygenated hydrocarbon than the olefin stream formed by contacting the oxygenate with the catalyst. Chase et al further teaches wherein the absorbent is ethylene glycol, diethylene glycol, or triethylene glycol. Miller et al further teaches wherein the absorption system is a countercurrent liquid absorption column. Miller et al further teaches compressing the olefin(216) stream prior to contacting the absorbent. Miller et al further teaches contacting the olefin stream recovered from the absorption zone with an absorbent(222) to form an olefin product stream. Miller et al further teaches polymerizing olefin in the olefin product stream. Miller et al further teaches wherein the olefin product stream contains not greater than 1 wppm water.

Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al(6403854) taken together with Chase et al(4218569).

Miller et al discloses a method of removing oxygenated hydrocarbons from an olefin stream comprising providing an olefin stream containing at least 50 wt% ethylene and propylene(column 5 lines 55-57), not greater than 20 wt% water, and not greater than 15 wt% oxygenated hydrocarbon, and contacting the olefin stream with an absorbent to absorb oxygenated hydrocarbon from the olefin stream. Miller et al is silent as to wherein the absorbent is selected from the group consisting of a polyol,

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amine, amide, nitrile, heterocyclic nitrogen containing compound, and mixtures thereof.

Chase et al discloses etherifying an olefin by reacting an olefin with methanol and a catalyst, and using a polyol as an absorbent to remove the methanol. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of contacting the olefin stream of Miller et al with a polyol absorbent because the polyol absorbent is an efficient absorber of the oxygenated hydrocarbon(methanol) while it minimizes absorption of hydrocarbons(column 3 lines 49-52 of Chase et al). Miller et al further discloses wherein the olefin stream contains at least 55 wt% and at least 60 wt% ethylene and propylene. Miller et al further teaches wherein the olefin stream contains not greater than 15 wt% and not greater than 10 wt% water. Miller et al further discloses wherein the olefin stream contains not greater than 12 wt% and not greater than 10 wt% oxygenated hydrocarbon. Chase et al further discloses wherein the absorbent is ethylene glycol, diethylene glycol, and triethylene glycol. Miller et al further teaches polymerizing olefin in the olefin product stream.

Claims 19-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al(6403854) taken together with Chase et al(4218569).

Miller et al discloses a method of removing oxygenated hydrocarbons from an olefin stream comprising providing an olefin vapor stream, wherein the olefin vapor stream comprises olefin, water and oxygenated hydrocarbon, and contacting the olefin vapor stream with an absorbent in an absorption system to absorb oxygenated hydrocarbon from the olefin vapor stream. Miller et al is silent as to wherein the absorbent is selected from the group consisting of a polyol, amine, amide, nitrile,

heterocyclic nitrogen containing compound, and mixtures thereof. Chase et al discloses etherifying an olefin by reacting an olefin with methanol and a catalyst, and using a polyol as an absorbent to remove the methanol. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of contacting the olefin stream of Miller et al with a polyol absorbent because the polyol absorbent is an efficient absorber of the oxygenated hydrocarbon(methanol) while it minimizes absorption of hydrocarbons(column 3 lines 49-52 of Chase et al). Miller et al further teaches removing an olefin stream from the absorption system, and wherein the olefin stream removed contains not greater than 100wppm water, and wherein the olefin stream removed contains at least 50 wt% less oxygenated hydrocarbon and water than the provided olefin vapor stream. Chase et al further discloses wherein the absorbent is ethylene glycol, diethylene glycol, and triethylene glycol.. Miller et al further discloses wherein the absorption system is a countercurrent liquid absorption column. Miller et al further discloses compressing(216) the olefin stream prior to contact with the absorbent. Miller et al further teaches contacting the olefin stream recovered from the absorption zone with an absorbent(222) to form an olefin product stream. Miller et al further teaches polymerizing olefin in the olefin product stream. Miller et al further teaches wherein the olefin product stream contains not greater than 1 wppm water.

Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al(6403854) taken together with Chase et al(4218569).

Miller et al discloses a method of removing water from an olefin stream comprising contacting an oxygenate with an olefin forming catalyst to form an olefin

stream, wherein the olefin stream comprises olefin and water, and contacting the olefin stream with an absorbent in an absorption system to absorb the water from the olefin stream. Miller et al is silent as to wherein the absorbent is selected from the group consisting of a polyol, amine, amide, nitrile, heterocyclic nitrogen containing compound, and mixtures thereof. Chase et al discloses *etherifying an olefin by reacting an olefin with methanol and a catalyst, and using a polyol as an absorbent to remove the methanol*. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of contacting the olefin stream of Miller et al with a polyol absorbent because the polyol absorbent is an efficient absorber of the water while it minimizes absorption of hydrocarbons(column 3 lines 49-52 of Chase et al). Miller et al further teaches removing an olefin stream from the absorption system. wherein the olefin stream removed contains at least 50 wt% less water than the olefin stream formed by contacting the oxygenate with the catalyst. Chase et al further discloses wherein the absorbent is ethylene glycol, diethylene glycol, and triethylene glycol.

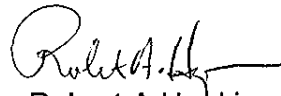
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday 9:00am-4:00pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.


Robert A Hopkins
Primary Examiner
Art Unit 1724

Rah
December 10, 2003